



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/550,284	09/22/2005	Kousuke Yoshihara	278508US26PCT	1883
22850	7590	12/22/2008		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER PAIK, SANG YEOP	
			ART UNIT 3742	PAPER NUMBER
			NOTIFICATION DATE 12/22/2008	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com  
oblonpat@oblon.com  
jgardner@oblon.com

**Office Action Summary****Application No.**

10/550,284

**Applicant(s)**

YOSHIHARA ET AL.

**Examiner**

SANG Y. PAIK

**Art Unit**

3742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 September 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3 and 5-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5 and 7-17 is/are rejected.
- 7) ☒ Claim(s) 6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SI/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Allowable Subject Matter***

1. The indicated allowability of the previous claims 4 and 5 has been withdrawn in light of the reconsidered prior art Kawano et al (JP 2002-289513) which there is an equivalent US application (US 2002/0123011). Examiner regrets and apologizes for the inconveniences to the applicant. Rejections based on the newly cited reference(s) follow.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Kawano et al (US 2002/0123011).

Kawano shows the heating processing device claimed including a hot plate with heating elements, a box member having walls to define a heat space, a fluid space above the heat space, a control unit for controlling the heating elements which control the hot plate temperature, air current production means including an air inlet and an exhaust port as an suction port wherein an air current flows in a substantially horizontal direction, and a movable filter (209) that partitions the heat space and the fluid space wherein the filter traps the volatile substance within the heat space.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawano et al (US 2002/0123011) in view of Shirakawa et al (US 6,222,161) and Matsuyama (US 6,246,030).

Kawano shows the heating processing device claimed except control means for controlling the hot plate and the air current production means to establish  $T_f < T_h \leq T_s \leq T_p$  relationship wherein  $T_f$  represents a temperature of the fluid space,  $T_h$  for temperature of heat space,  $T_s$  for temperature of the wafer, and  $T_p$  for the temperature of hot plate, and the filter.

Shirakawa '161 shows a device for baking a substrate comprising a hot plate, the hot plate with a temperature control unit including a temperature sensor for controlling the temperature of the hot plate so that the relationship  $T_L < T_W < T_H$  is established wherein  $T_L$  represents the temperature of the fluid space having a cooling jacket,  $T_W$  for the temperature of a wafer, and  $T_H$  for the temperature of a hot plate. Shirakawa '161 also shows a plurality of temperature sensors to measure the temperatures of the hot plate, the wafer substrate and the fluid space having the cooling jacket wherein the cooling jacket unit has a fluid supply port and a fluid discharge port.

Matsuyama shows an air current producing means wherein the air in the heat space is set to a desired heating temperature such as that of the hot plate to maintain a

desired uniform heating temperature within the processing chamber. A sensor (214) is also provided to measure the air or gas provided in the heating space.

In view of Shirakawa '161 and Matsuyama, it would have been obvious to one of ordinary skill in the art to adapt Kawano with temperatures set at a desired range in its respective elements including the hot plate, the wafer, the heat space and the fluid space in order to effectively process a wafer therein.

6. Claims 7-12 and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawano in view of Shirakawa '161 and Matsuyama as applied to claims 2 and 3 above, and further in view of Shirakawa (JP 11-204417) or Akimoto (US 6,097,005).

Kawano in view of Shirakawa '161 and Matsuyama shows the device claimed except for a cooling unit.

Shirakawa '417 shows that it is known to provide a cooling unit formed above a fluid space, and Akimoto also shows that it is known to provide a cooling unit above a fluid air space to further control the fluid heat temperature to achieve a desired temperature therein.

With respect to the recited temperatures in claims 10-11, 15 and 17, Matsuyama shows an air current producing means, and it would have been obvious to one of ordinary skill in the art to modify Kawano, as modified by Shirakawa '161, Matsuyama, and Shirakawa '417, to provide the controls means to the air producing means as well as the hot plat to control its respective heating temperature within the recited ranges as

a matter of routine operations to achieve the desired heating temperatures to effectively control the substrate processing.

7. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over s as applied to claims 7-12 and 15-17 above, and further in view of Boshita (JP 2002-359175).

Kawano in view of Shirakawa '161, Matsuyama, and Shirakawa '417 or Akimoto shows the device claimed except for a plurality of suction ports in a circumferential end portion of the fluid space.

Boshita shows a plurality of suction portion in the circumferential end portion of the fluid space, and it would have been obvious to one of ordinary skill in the art to adapt Kwanao, as modified by Shirakawa '161, Matsuyama, and Shirakawa '417 or Akimoto, with a plurality of suction ports as an alternative arrangement that is also known to effectively transport the air out of the chamber.

With respect to the heater as recited in claim 14, Matsuyama shows a heater provided near the suction port, and it would have been obvious to provide a heater near the suction port maintain the desired temperature while facilitating more rapid flow of the air/gas into the suction port.

***Allowable Subject Matter***

8. Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SANG Y. PAIK whose telephone number is (571) 272-4783. The examiner can normally be reached on M-F (9:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tu Hoang can be reached on (571) 272-4780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SANG Y PAIK/  
Primary Examiner, Art Unit 3742